REMARKS

The drawings have been amended to correct an error with respect to one of the arrows depicted in FIG. 4A. Specifically, the arrow at the (priority 2, borrowing depth 3) cell pointing to class 1 (node 420) has been replaced by an arrow at the (priority 2, borrowing depth 2) cell. Support for the amendment to the drawings can be found, in one example, at page 12, lines 7-20 of the specification. No new matter has been added.

Claim 15 has been added. Comments of the applicant are preceded by related comments of the examiner in small bold-faced type:

> **5. Claims 1-9 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Roberts, U.S. Patent No. 6,574,195.**
>
> **6. With respect to claim 1, Roberts teaches communication system for implementing an overall communication policy [see abstract and fig.2] comprising: ...**
>
> **a plurality of processors [220 i.e. switches], ...**
>
> **wherein each processor in the plurality of processors is configured to implement a separate communication policy [co1.7, lns. 47-48] for data passing between the first trunked communication link and a corresponding one of the second plurality of communication links such that together the separate communication policies approximate the overall communication policy, and wherein the plurality of processors are further configured to communicate among one another to adjust the separate communication policies [co1.7, lns. 53-64] to adapt to data flows passing through the processors [col .7, ln.15 - co1.8, ln..20].**

Claim 1 is allowable for a number of independent grounds. First, claim 1 recites a system that includes a set of processors "wherein each processor ... is configured to implement a separate communication policy for data . . . such that together the separate communication policies approximate the overall communication policy."

Roberts discloses techniques for providing networks with quality of service (QoS) based upon per-flow state information. [Roberts, col. 5, lns 34-35]. The per-flow state information is characterized by a set of QoS descriptors that is specific to a unique micro-flow. [Roberts, col. 5, lns 41-43].

Each micro-flow includes a first data packet, at least one additional data packet, and a close packet. [Roberts, col. 8, lns 10-13]. Each data packet of a micro-flow includes a label field that specifies a set of variables ("label information") that enables switches of the Roberts' network to uniquely identify one micro-flow from another. [Roberts, col. 8, lns 24-33]. The first

data packet further includes a QoS field in which a set of QoS descriptors that is specific to the micro-flow is included. [Roberts, col. 5, lns 45-48; col. 8, lns 8-14 and lns 47-51].

It appears from the Office Action that the examiner corresponds the set of QoS descriptors of each micro-flow with the "separate communication policies" of claim 1, and takes the position that a switch of the Roberts network "[implements] a separate communication policy for data" when the switch ensures that the QoS constraints (as defined by the set of QoS descriptors) are achieved by adjusting the transmission rate of the micro-flow.

In Roberts, when a switch receives a first packet of a micro-flow, the switch extracts the label information and the set of QoS descriptors, associates the set of QoS descriptors with the label information, determines a destination and route ("path information") for the micro-flow, stores the QoS descriptors and path information within a flow block of a flow block table. [Roberts, col. 12, line 65 – col. 14, line 1]. For each subsequent packet of the micro-flow that is received, the switch uses the label information of the packet to retrieve the associated set of QoS descriptors and path information from the flow block table. [Roberts, col. 15, lns 25-30]. The switches of the network use a queuing technique, such as weighted fair queuing, to adjust the transmission rate of each micro-flow as needed to ensure that the QoS of each micro-flow is achieved. [Roberts, col. 10, lns 40-44].

Even if Roberts teaches implementing separate communication policies in separate processors, the examiner has failed to identify which component of Roberts corresponds to the "overall communication policy" of claim 1 with which "together the separate communication policies approximate." Roberts does not disclose an "overall communication policy" that is distinct from the "separate communication policies." The applicant submits that Roberts teaches away from such an "overall communication policy" at col. 7, lns 48-52:

> [Each] micro-flow can have its own specific QoS characteristics and, unlike conventional networks 100, ***is not treated as a specific class of service that can only have a specific QoS class characteristic***. (emphasis added).

The above-quoted paragraph makes clear that the QoS constraints for each micro-flow in Roberts is specified wholly by its own specific QoS descriptors, and that there is no overall

communication policy for the network that dictates, modifies, or otherwise affects the QoS of any of the micro-flows as the micro-flows are routed through the network.

Furthermore, there is no *approximation* of any other policy, let alone an approximation of some "overall" policy in Roberts. Nowhere does Roberts disclose any approximation, estimation or near likeness of any descriptor or policy. In instances in which packets of a particular micro-flow are concurrently processed at multiple switches of the network, there may be copies of the set of QoS descriptors at the flow block tables of the multiple switches. Even so, each switch has a verbatim copy of the set of QoS descriptors included in the QoS field of the first data packet of the micro-flow. There is no disclosure of a set of QoS descriptors at one switch approximating a set of QoS descriptors at another switch, and no disclosure of the sets of QoS descriptors at any switch or across multiple switches approximating an overall communication policy.

As a second independent grounds for allowability, the processors of claim 1 are "further configured to communicate among one another to adjust the separate communication policies to adapt to data flows passing through the processors."

Even if copies of a set of QoS descriptors associated with a micro-flow are stored in the flow block tables of multiple switches of the Roberts network, Roberts does not disclose any communication amongst the switches in regards to these separate copies of the QoS descriptors. Indeed, the only inter-switch communication disclosed in Roberts relates to the routing of the micro-flows themselves. [Roberts, col. 7, lns. 53-64]. Once a set of QoS descriptors for a micro-flow is established in the switch's flow block table, Roberts gives no hint that its contents is subsequently communicated to any other switch in the network.

Moreover, Roberts does not disclose any communications that act to "adjust" the separate communication policies. Prior to a switch receiving a first data packet of a micro-flow, the switch does not have a set of QoS descriptors that is associated with the micro-flow. Rather as previously-discussed, the set of QoS descriptors is extracted from the first data packet and stored in the flow block table of the switch. [Roberts, col. 11, lns. 24-31]. *After* the locally-cached copy of the set of QoS descriptors is created, there is no reference to any *subsequent* adjustment made to that copy. In fact, Roberts specifically touts the advantages of never having to

determine the QoS characteristics again after the first packet of the micro-flow is received. [Roberts, col. 11, lns. 28-29].

Roberts does make a passing reference to sending information regarding the guaranteed rate value to the switches from an external source. [Roberts, col. 9, lns. 13-17]. Even if this one value could be construed as a "communication policy", it cannot be said to be a communication that *adjusts* the policies to adapt to a data flow, as it is sent "ahead of time", before there is any policy to adjust, and prior to any data flows to which it is to adapt. [Roberts, col. 9, ln. 14].

For at least these reasons, claim 1 and its dependents patentable over Roberts.

The foregoing remarks also apply to independent claim 11, which has corresponding limitations, and the claims that depend from claim 11.

In regard to Claim 9, the examiner stated:

> **14. With respect to claim 9, Robert teaches a communication system for implementing a communication policy comprising:**
> - **a first communication link [i.e. micro-flow A-D between computer system 11OA-D and switch 220];**
> - **a second communication link [i.e. micro-flow A-D between computer system 11OE-H and switch 220];**
> - **a first processor coupled to the first and second communication links, configured to implement the communication policy for data passing between the first communication link and the second communication link [fig.2]; and**
> - **a second processor coupled to the first and second communication links, the second processor in communication with the first processor to maintain a mirror configuration on the second processor to implement the communication policy in a standby status relative to the first processor [fig.2];**
> - **wherein the first processor implements the communication policy until the second processor detects a failure in the first processor, at which time the second processor implements the communication policy [col. 14, lns. 13-67 i.e. fault tolerance or redundancy].**

Claim 9 recites a system comprising a first and a second communication link, a first and a second processor each coupled to the communication links, and

> the ***second processor*** in communication with the first processor to maintain a mirror configuration on the second processor to implement the communication policy in a ***standby status*** relative to the first processor; wherein the first processor implements the communication policy ***until the second processor detects a failure in the first processor***, at which time the second processor implements the communication policy. (emphasis added).

Roberts discloses a network of switches, each with multiple outgoing links and where each switch maintains two of these links as preferred outflow links. [Roberts col. 14, lns 1-12]. Incoming packets are then routed to the most-preferred link unless it becomes unavailable, in which case the second-most-preferred link is used. [Roberts col. 14, lns 7-12]. Thus Roberts describes techniques for determining and using two maximally efficient, alternate paths through the switching fabric of a switch that have the least number of physical fabric switch core components in common in an attempt to ensure redundancy. [Roberts col. 14, lns 52-56].

It appears from the Office Action that the examiner corresponds Roberts' alternate paths with the "first and second communication links" of Claim 9, and takes the position that two of these paths, in combination with two switches in the Roberts network, maintains a

> mirror configuration on the second *processor* to implement the communication policy in a standby status relative to the first processor; wherein the first processor implements the communication policy until the second processor detects a failure in the first processor, at which time the second processor implements the communication policy.

But Roberts does not teach a second *processor* in a standby status. Roberts never uses the word "standby" or "alternate" with respect to processors, instead, contemplating a redundant communications path instead of a redundant processor. [Roberts, col. 14, lns 1-12, 46-47, 18-19]. When deciding which communication link to use, the "utilization monitor" in Roberts checks for "the changing bandwidth characteristics of the *network*", it does not check for failures in processors or switches. [Roberts, col. 14, lns 33-37].

This check is done by a monitor which is running within the *same* processor that contains the communications links being checked. [Roberts, col. 14, lns 15-16]. Roberts does not teach *multiple* processors with one processor detecting failures in another processor and implementing a communication policy in the event of a failure of the other processor. Instead, Roberts teaches only the use of redundant, multiple paths through a *single* processor.

The examiner appears to find that the switches (220) in Roberts, Fig. 2 correspond to the two processors in Claim 9 and that the Roberts micro-flows (110A-H) correspond to the first and second communication links in that Claim. Yet these switches and their connected micro-flows cannot be the same processors and communication links that purportedly implement the "fault

tolerance or redundancy" as taught in [Roberts, col. 14, lns 13-67] because the redundant micro-flows of Roberts are *inside* a *single* switch. Roberts clearly shows that the primary and secondary "line-cards" and "egress trunk links" that the examiner apparently corresponds to communication paths are actually within a single switch (200). [Roberts, Fig. 4, col. 14, lns 1-7]. Thus Roberts does not teach the concept of a second, standby processor for use in providing network redundancy.

For at least these reasons, claim 9 is patentable over Roberts. All of the dependent claims are patentable for at least the same reasons as the claims from which they depend.

The applicant acknowledges the examiner's indication that claim 13 contains allowable subject matter.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Enclosed is a $100.00 check for excess claim fees. Please apply any other charges or credits to deposit account 06-1050.

Attorney's Docket No.: 18636-013001

Respectfully submitted,

Date: 8/8/05

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AMENDMENTS TO THE FIGURES:

The attached replacement sheet of drawings includes changes to FIG. 4A.

Attachments following the last page of this amendment:

Replacement sheet (1)

Annotated sheet showing changes (1 sheet)

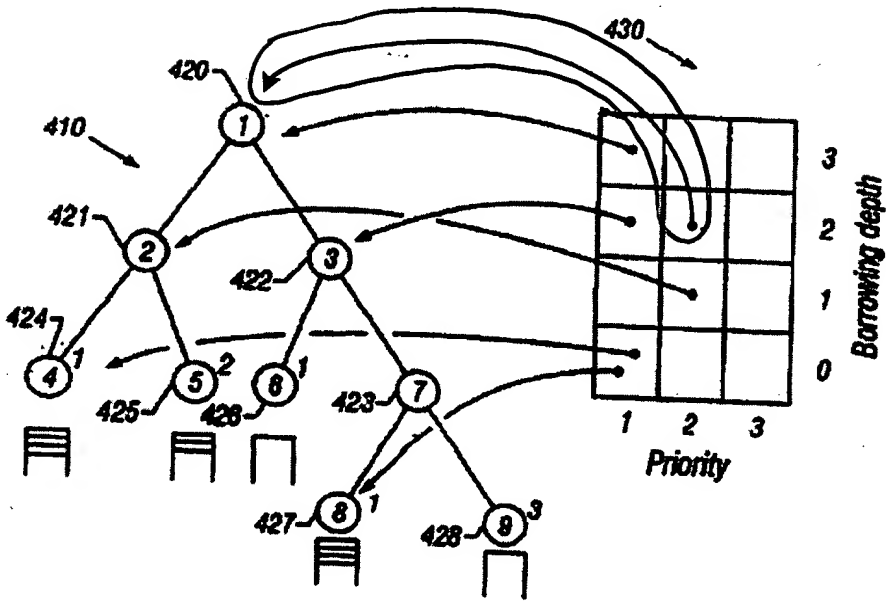

FIG. 4A

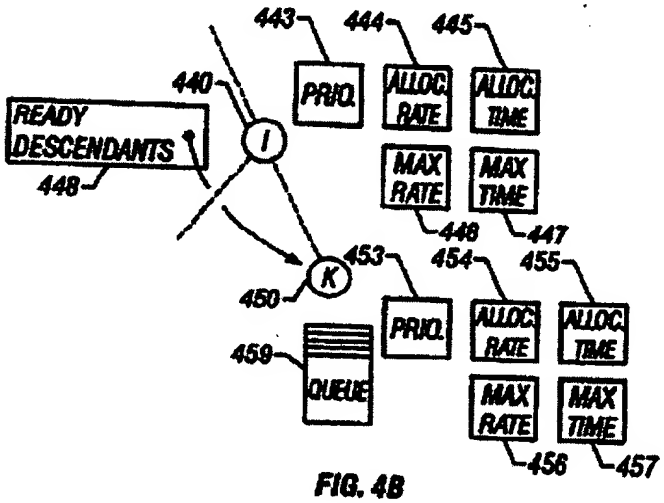

FIG. 4B